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ABSTRACT

The relative contribution of a variety of variables to different self-concept sub-constructs requires further exploration despite the existence of vast research about overall self-regard. The contributions of demographic, achievement, achievement motivation, and school self-concept dimensions to the prediction of the physical, moral-ethical, personal, family, social and total self of a group of high school students (N=98) was examined to explore different dimensions of self-concept. Students in a Summer Upward Bound Program completed the Tennessee Self Concept Scale, the Self Concept and Motivation Inventory (SCAMIN), the California Achievement Test, and a demographic data sheet. Demographic variables contributed most to the prediction of family self and moral-ethical self, while achievement variables contributed to prediction of social self. The achievement motivation and self-concept variables accounted for over half of the variance in predicting the Total Self scales. The SCAMIN and Tennessee Self Concept Scale, although exhibiting high reliability, tended to measure different constructs of self-concept. (NAB)

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The Multi-dimensional Self:
Predictors of Self-concept in Adolescents

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Self-concept continues to be of interest to researchers, theorists and practitioners. Wylie (1979) has concluded that hundreds of thousands of research hours have been devoted to studying self-concept variables, especially over-all self-regard. She suggested, however, that there is still an elusiveness in terms of adequate conceptual and operational definitions. Shavelson, Hubner and Stanton (1976) have proposed a multi-factor model of self-concept which they feel presents promising constructs to explore in research and measurement contexts. They include major dimensions of academic, social, emotional and physical self and sub-constructs in each area.

Many studies of factors related to self-concept have focused on single dimensions such as age, sex, grade, ethnic background, achievement, intelligence, and socioeconomic status. Wylie (1979) has noted the need for more complex analyses to investigate the self-concept construct. McIntire and Drummond (1977) explored the relative contributions of selected personality characteristics, school achievement, intelligence, sex and ethnic background to self-concept in a fourth grade sample. They concluded that personality variables were found to be more predictive than achievement, ability, or demographic factors in predicting general self-concept.

There is an obvious need to explore the relative contribution of a variety of variables to different self-concept sub-constructs. Attention not only has to be given to different dimensions of self-concept but with different groups of subjects at different age levels. The purpose of this study was to investigate the relative contribution of a variety of variables to sub-constructs of over-all self-concept. Specifically, the contributions of demographic, achievement, achievement motivation and school self-concept dimensions to the prediction of the physical, moral-ethical, personal, family, social and total self of a group of high school students was examined. A secondary purpose of this study was to explore the relationship between two self-concept instruments commonly used with secondary school students.

The model proposed here for studying self-concept stresses the need to examine relationships between different dimensions of self-concept, theories of development, and psychometric characteristics of instruments, with a multi-variate approach to analysis. It is recognized that the size of sample here limits the generalizability of results. However, the methodological approach illustrated is one which may be of promise.

THE SUBJECTS

The subjects were 98 students (47 males, 51 females) participating in the summer Upward Bound Program at the University of Maine at Orono. The students ranged in age from fourteen to nineteen ($\bar{x}=16.62$). Nineteen were high school sophomores, 26 juniors, 28 seniors and 25 post-secondary. All were from one of five Maine counties and were selected as individuals who were of average or above average academic potential and unmotivated and/or underachieving. They were from poverty backgrounds (average family income = \$4990.00) and often from large families ($\bar{x}=5.8$).

INSTRUMENTS

Students completed four instruments as a part of their summer orientation program. These were the Tennessee Self Concept Scale (Fitts, 1965), the Self Concept and Motivation Inventory (Milchus, Farrah and Reitz, 1968), the California Achievement Test, and a demographic data sheet.

The Tennessee Self Concept Scale (TSCS) contains 100 items to which the subject is asked to respond on a five point scale ranging from "completely false" to "completely true". There are 10 items which make up a self-criticism scale. The remaining 90 items are assorted in a 3 by 5 grid. There are five dimensions of the self (Physical, Moral-Ethical, Personal, Family and Social) and three levels: Identity, what a person is; Self-Satisfaction, how a person accepts oneself; and Behavior, how a person acts.

Test-Retest reliabilities for the five dimensions of self ranged from .80 to .90 and for the levels from .88 to .90. The intercorrelations between the scales ranged from .41 to .75. Considerable evidence has been presented on the content and discriminate validity of the test (Fitts, 1965).

The Self-Concept and Motivation Inventory (SCAMIN) consists of 64 situations in which respondents are asked which face they would wear in the circumstance. The faces range from a big smile to a big frown. The instrument is read by the examiner. There are four scales: Goal and achievement needs, failure avoidance, Role expectations and self-adequacy. The first two scales are combined to yield a total motivation score; the last two combine for a total self-concept score.

The split-half reliabilities for the separate scales range from .73 to .88, split-half reliability for the total motivation scale is .92 and for total self-concept, .85.

STATISTICAL ANALYSIS

Pearson product-moment correlations were computed between the major TSCS scales, row and column scores and the four scales of the SCAMIN. A principle component factor analysis utilizing orthogonal rotation was computed with the cells of the TSCS and the SCAMIN. Step-wise multiple regression was computed with the demographic, achievement and school self-concept scales as independent variables and the Physical, Moral-Ethical, Personal, Family, Social and Total self scales as the dependent variables. The two achievement motivation and self-concept scales of the SCAMIN were included as affective measures. The demographic variables utilized were grade, educational level of mother and father, sex, age, size of family, birth order, number of siblings, and number of summers in Upward Bound. The achievement variables included were the total scores on the reading, mathematics and language sections of the California Achievement Test. These measures meet the requirements of multiple regression that the variables are measured in interval or ratio scales or that nominal variables are incorporated in the regression through the use of "dummies" (Kerlinger, 1973).

RESULTS

There were only two significant correlations between the achievement motivation scales and TSCS major scales. Achievement needs correlated .417 with Identity and .285 with Physical Self. Both correlations were significant at the .001 level. None of the SCAMIN scales correlated significantly with the Self-Criticism Scale of the TSCS. The two self-concept scales of the SCAMIN had low to moderate positive but statistically significant correlations with most of the TSCS scales. Neither SCAMIN scale correlated with the Moral-Ethical Scale. The highest correlations were between Role Expectancy and Identity (.478) and Self-Adequacy and Identity (.548). The correlations between the SCAMIN and TSCS is presented in Table 1.

A factor analysis was completed utilizing the 15 cells on the TSCS and the four major scales on the SCAMIN. The varimax Rotated Factor Matrix is presented in Table 2. Six factors had eigen values greater than 1.00 and accounted for 64.8% of the variance. On the first factor, three of the SCAMIN Scales had loadings greater than .40, Achievement needs (.70), Role Expectancy (.85) and Self Adequacy (.86), and one cell from the TSCS, social Self-Identity (E1) (.57). The factor is labeled identity.

On the second factor, B2, (Moral Ethical/Self Satisfaction), C2, (Personal Self/Self Satisfaction) and E2, (Social Self/Self Satisfaction) have the highest loadings. The factor is labeled Self-Acceptance.

On the third factor the three cells of the Physical Self Scale have the highest loadings and the factor is labeled the Physical Self.

On the fourth factor B1, (Moral-Ethical Self/Identity) has a high positive loading (.72) and C3 (Personal Self-Behavior) has a negative loading (-.57). The factor is labeled Moral-Ethical Self.

The fifth factor has two cells with positive loadings, D1 (Family/Identity) (.47), D2 (Family/Self-Satisfaction) (.45), and E3 (Social Self/Behavior) with a negative loading (-.62). The factor is labeled group self.

The sixth factor has two scales from the TSCS with significant loadings. They are A2 (Physical Self/Identity) (.64) and C2, (Personal Self/Identity) (.41) as well as from the SCAMIN, Achievement Investment (.50). The factor is called Self-Investment.

Multiple regression was used to investigate the relative contribution of demographic, achievement and affective variables to predicting dimensions of self-concept, specifically the Physical, Moral-Ethical, Personal, Family, Social and Total Self of the TSCS. The summaries of results of the six regression analyses are presented in Table 3. In predicting the physical self, in which, according to Fitts, the individuals are presenting their view of their body, their state of health, their physical appearance, skills, and sexuality, the variable loading first was Self-Adequacy (SCAMIN). It correlated .51 with Physical Self and contributed 25.6 percent of the variance. Sex loaded second and correlated $-.26$ with physical self (males tended to have higher physical self scores) and contributed 11.6 percent additional variance. The educational level of the mother was entered on step 3, correlated .24 with physical self and contributed 4.0% additional unique variance. Overall a multiple R of .744 was computed and explained 55.4% of the variance.

A multiple R of .710 was computed for Moral-Ethical Self and explained 50.4% of the variance. Moral-Ethical Self describes the self from a moral ethical frame of reference, moral worth, relationship to God, feelings of being a "good" or "bad" person, and satisfaction with one's religion or lack of it. An achievement variable, Total Mathematics Achievement loaded first and correlated .37 with Moral-Ethical Self and contributed 13.8 percent of the variance. Sex loaded second (females had higher Moral/Ethical Self scores), correlated .30 with the criterion variable and contributed 5.7 percent additional variance. The Total Language Score loaded third, correlated .37 with Moral-Ethical Self and contributed 4.5 percent unique variance.

A Multiple R of .633 was computed for predicting Personal Self. Personal Self reflects individuals sense of personal worth, their feelings of adequacy as a person and their evaluation of their personality apart from their body or their relationships to others. The total Reading Score on the California Achievement Test was entered on step one and correlated .34 with Personal Self and contributed 11.3 percent variance. Self adequacy (SCAMIN) was entered on the second step, correlated .25 with Personal Self and contributed 3.9 percent variance. Number of siblings was included on the third step and correlated -.16 with personal self.

Family Self reflects one's feelings of adequacy, worth and value as a family member. It reflects the person's sense of adequacy and worth with his or her closest and most immediate circle of associates. A multiple R of .717 was computed and 51.3 percent of the variance accounted for. The number of summers in Upward Bound loaded first and correlated -.33 with Family Self (those participating fewer years in Upward Bound had higher Family Self-Scores). Number of siblings was entered on the second step, correlated .28 with Family Self and contributed 11.0% additional variance. The third variable entered was achievement needs (SCAMIN) which correlated -.15 with Family Self and contributed 6.8 percent additional variance.

A multiple correlation of .813 was computed in predicting Social Self and 66.3 percent of the variance was accounted for. Social self is another "self as perceived in relation to others" category but pertains to others in a more general way. It reflects individuals sense of adequacy and worth in their social interactions with other people in general. The total Mathematics Score on the California Achievement Test was entered on the first step and correlated .56 with Social Self and contributed 31.0 percent of the variance. The number of summers in Upward Bound was included on the second step and correlated .48 with Social Self. Role Expectancy (SCAMIN) was entered in the third step and correlated with Social Self.

Total Self reflects the general overall level of self esteem of an individual. A multiple R of .634 was computed and accounted for 40.2 percent of the variance. The first variable entered was Self Adequacy (SCAMIN) which correlated .39 with total self. The Total Language Score on the CAT was entered on the second step, correlated .32 with Total Self and contributed 6.0 percent variance. Educational level of the mother correlated .14 with Total Self and contributed 4.4 percent unique variance on the third step.

DISCUSSION

There appear to be markedly different configurations of variables which describe the various dimensions of the self. For example, on the five dimensions of self examined here, self-adequacy loaded first on Physical Self, second on Personal Self, 10th on Moral-Ethical, 14th on Family and 16th on Social Self. Sex loaded second on Physical Self and Moral-Ethical Self but 7th on Family and Social Self and 9th on Personal Self. The Total Math Achievement Scale loaded first on Social Self and on Moral-Ethical Self.

Demographic variables contributed most to the prediction of Family Self and Moral-Ethical Self. Achievement variables contributed to prediction of Social Self and Self-Adequacy to predicting Physical Self. The achievement motivation and self-concept variables accounted for over half of the variance in predicting the Total Self scales.

The relationship of achievement variables to self concept might not necessarily be due to higher achievement, simply being correlated with high self-concept but as Havighurst and Erickson suggested, the central developmental task of adolescence is self-definition and the major factor leading to self-definition is the development of competence. Schools place great emphasis on intellectual competence and the assessment here was in a quasi-school setting.

The SCAMIN Achievement Motivation Scales are not correlated with the TSCS Scales but the SCAMIN Self-concept Scales have a low positive relationship to most of the major TSCS scales. The SCAMIN and Tennessee, although having high reliability for affective instruments, tend to be measuring different constructs of self-concept. The SCAMIN might be measuring more dimensions of the school self.

The factor analysis, because of the large number of items on both scales, was computed on cell scores. There is some support here to the concept that the TSCS measures more than one dimension of self-concept but, there is not support for the named categories. The use of the Total Self-concept Score may be deceptive and may have masked differences in the constructs or dimensions of self.

Although one cannot conclude from this study that certain patterns of factors are determinants or antecedents of self-concept, it is clear that counselors, educators, and researchers need to consider a multi-factor theory of self-concept and realize that different factors need to be taken into consideration in planning programs to enhance self-concept development. Developmental theories need to be understood and integrated with our empirical studies of self-concept.

TABLE 1

PEARSON PRODUCT MOMENT CORRELATIONS BETWEEN SCALES OF THE SCAMIN
AND TENNESSEE SELF-CONCEPT SCALES

	ACHIEVEMENT NEED	FAILURE AVOIDANCE	ROLE EXPECTANCY	SELF ADEQUACY	$\bar{X}$	SD
Self-criticism	.140	-.012	-.035	-.055	35.33	5.29
Identity	.417***	-.197	.478***	.548***	112.36	10.24
Self Satisfaction	.081	.117	.150	.322***	94.38	14.72
Behavior	-.069	.159	-.180*	-.148	87.22	5.22
Physical Self	.285**	.127	.250**	.379***	60.78	8.18
Moral-Ethical Self	-.004	-.086	.019	.047	55.80	5.51
Personal Self	.064	.017	.186*	.326***	58.87	6.42
Family Self	.067	-.054	.184*	.222*	57.58	8.11
Social Self	.142	-.007	.369***	.361***	59.71	7.13
Total Self	<u>.104</u>	<u>.016</u>	<u>.284**</u>	<u>.332***</u>	<u>291.14</u>	<u>34.32</u>
Mean	64.71	52.09	56.39	51.46		
SD	8.11	6.30	5.95	6.72		

NOTE: *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$

TABLE 2

VARIMAX ROTATED FACTOR MATRIX OF THE TSCS CELLS AND SCAMIN SUBSCALES

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	COMMONALITY
A1	.213	.194	.939	.157	-.024	.028	.990
A2	.134	.172	.308	.130	-.136	.636	.582
A3	.145	.047	.396	.012	.087	.057	.191
B1	.052	.043	.067	.720	.075	.032	.534
B2	-.007	.723	.025	-.069	.278	.017	.606
B3	-.167	-.219	-.064	.111	.379	-.091	.244
C1	.214	.434	.187	.294	.109	-.148	.389
C2	.248	.696	.063	.131	-.008	.414	.737
C3	-.175	-.242	-.065	-.566	-.145	.080	.446
D1	.279	.124	.193	.227	.471	.065	.408
D2	-.015	.236	.009	.229	.459	.113	.382
D3	-.190	-.243	-.090	-.051	-.083	-.032	.114
E1	.572	.228	.183	.092	-.219	.007	.469
E2	.003	.720	.117	.255	-.114	.031	.611
E3	-.019	-.117	-.068	.072	-.617	.198	.444
ACH. NEEDS	.709	-.030	.253	.061	.036	.177	.604
ACH. INV.	-.243	.005	-.068	-.144	-.029	.504	.339
ROLE EXP.	.847	.109	.098	.029	.058	-.165	.771
SELF ADQ.	.859	.107	.091	.169	.037	.208	.820
EIGENVALUE	4.581	2.170	1.924	1.300	1.260	1.071	
PERCENT OF VAR.	24.1	11.4	10.1	6.8	6.6	5.1	

TABLE 3
MULTIPLE PREDICTORS OF COMPONENTS OF SELF-CONCEPT

PREDICTORS	DIMENSIONS OF SELF					
	PHYSICAL SELF		MORAL-ETHICAL SELF		PERSONAL SELF	
	STEP	UNIQUE VARIANCE	STEP	UNIQUE VARIANCE	STEP	UNIQUE VARIANCE
SCAMIN						
ACHIEVEMENT NEEDS	16	0.0	9	2.4	12	0.8
ACHIEVEMENT INVESTMENT	13	0.2	13	1.2	10	2.1
ROLE EXPECTANCY	15	0.0	15	0.5	5	2.2
SELF ADEQUACY	1	25.6	10	2.8	2	3.9
DEMOGRAPHIC						
EDUCATION OF MOTHER	3	4.0	12	0.6	8	1.8
EDUCATION OF FATHER	8	2.4	7	2.3	15	0.1
SIZE OF FAMILY	7	1.3	6	4.3	4	2.4
BIRTH ORDER	10	0.4	11	2.0	11	1.2
NUMBER OF SIBLINGS	11	1.4	4	3.7	3	5.2
NUMBER OF SUMMERS IN UPWARD BOUND	12	0.4	5	4.2	6	2.9
SEX	2	11.6	2	5.7	9	1.9
AGE	6	1.9	8	1.7	7	2.0
GRADE	14	0.2	14	0.7	16	0.2
ACHIEVEMENT						
TOTAL READING	4	2.3	16	0.1	1	11.3
TOTAL MATH	5	2.1	1	13.8	14	1.5
TOTAL LANGUAGE	9	1.2	3	4.5	13	0.8
MULTIPLE R		.744			.710	.633
R SQUARE		.554			.504	.401

TABLE 3 (con't)
MULTIPLE PREDICTORS OF COMPONENTS OF SELF CONCEPT

PREDICTORS	DIMENSIONS OF SELF					
	PHYSICAL SELF		MORAL-ETHICAL SELF		PERSONAL SELF	
	STEP	UNIQUE VARIANCE	STEP	UNIQUE VARIANCE	STEP	UNIQUE VARIANCE
SCAMIN						
ACHIEVEMENT NEEDS	3	6.8	10	1.3	4	6.2
ACHIEVEMENT INVESTMENT	10	2.9	6	2.2	6	1.2
ROLE EXPECTANCY	6	3.6	3	6.4	12	0.7
SELF ADEQUACY	14	0.3	16	0.0	1	15.0
DEMOGRAPHIC						
EDUCATION OF MOTHER	11	1.7	13	0.3	3	4.4
EDUCATION OF FATHER	15	0.0	8	1.5	8	0.9
SIZE OF FAMILY	4	5.4	9	1.4	14	0.1
BIRTH ORDER	9	1.7	15	0.1	7	4.8
NUMBER OF SIBLINGS	2	11.0	14	0.3	15	0.1
NUMBER OF SUMMERS IN UPWARD BOUND	1	10.9	2	10.3	11	0.7
SEX	7	3.6	7	2.0	10	0.6
AGE	13	0.2	4	6.4	5	1.5
GRADE	5	2.1	12	0.5	9	0.6
ACHIEVEMENT						
TOTAL READING	12	1.2	5	2.2	16	0.0
TOTAL MATH	16	0.0	1	31.0	13	0.6
TOTAL LANGUAGE	8	1.6	11	0.7	2	6.0
MULTIPLE R						
		.717		.814		.634
R SQUARE						
		.513		.663		.402

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